

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Cor. Ref. No.	if Known
		Serial Number	09/678,266
		Filing Date	10/3/2000
		First Named Inventor	Ming Xi
		Group Art Unit	1702 2823
		Examiner Name	unassigned <i>Barrene</i>
		Attorney Docket Number	4714P1/AMI-11

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner
Signature

David H. Faust

Date
Considered

~~8/16/12~~

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)				Docket No.	Serial No.		
				APPM/4714.P1	09/678,266		
LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT (Use several sheets if necessary)				Applicant	Confirmation No.		
				Kori, et al.	4642		
				Filing Date	Group		
				10/03/2000	2827		
U.S. Patent Documents							
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
<i>DK</i>	A1	2001/0042799 A1	11/22/2001	Kim, et al.	239	553	02/02/2001
	A2						
	A3						
	A4						
	A5						
	A6						
	A7						
	A8						
	A9						
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	A12						
Foreign Patent Documents							
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	B2						<input type="checkbox"/> <input type="checkbox"/>
OTHER ART							
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.					
<i>DK</i>	C1	"Cluster Tools for Fabrication of Advanced Devices" Jap. J of Applied Physics, Extended Abstracts 22 nd Conference Solid State Devices and Materials (1990), pp. 849- 852					
<i>DK</i>	C2	Kitigawa, et al., "Hydrogen-mediated low temperature epitaxy of Si in plasma-enhanced chemical vapor deposition", Applied Surface Science (2000), pp. 30-34					
<i>DK</i>	C3	Lee, et al., "Pulsed nucleation for ultra-high aspect ratio tungsten plugfill", Novellus Systems, Inc. (2001), pp. 1-2 (COPY NOT AVAILABLE TO APPLICANT AT THIS TIME)					
Examiner <i>David D. Zameke</i>				Date Considered <i>8/6/2</i>			
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.							

U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)		Docket No. AMAT/4714.P1	Serial No. 09/678,266
LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT		Applicant Xi, et al.	TC 7/2002
(Use several sheets if necessary)		Filing Date	Group 1700 1762 2827
	Examiner Unknown	October 03, 2000	

U.S. Patent Documents

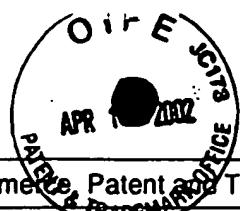
*Examiner Initial	Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
PA	A1 4,486,487	12/04/84	Skarp	428	216	04/25/1983
MS	A2 4,829,022	05/09/89	Kobayashi et al.	437	107	12/09/1986
MS	A3 4,834,831	05/30/89	Nishizawa et al.	156	611	09/04/1987
PA	A4 4,838,983	06/13/89	Schumaker et al.	156	613	03/18/1988
PA	A5 4,838,993	06/13/89	Aoki et al.	156	643	12/03/1987
PA	A6 4,859,625	08/22/89	Nishizawa et al.	437	81	11/20/1987
PA	A7 4,927,670	05/22/1990	Erbil	427	255.3	06/22/1988
PA	A8 4,931,132	06/05/90	Aspnes et al.	156	601	10/07/1988
PA	A9 4,960,720	10/02/90	Shimbo	437	105	08/24/1987
PA	A10 4,975,252	12/04/90	Nishizawa et al.	422	245	05/26/1989
PA	A11 5,013,683	05/07/91	Petroff et al.	437	110	01/23/1989
PA	A12 5,085,885	02/04/92	Foley et al.	477	38	09/10/1990
PA	A13 5,091,320	02/25/92	Aspnes et al.	437	8	06/15/1990

Foreign Patent Documents

*Examiner Initial	Document Number	Date	Country	Class	Subclass	Translation	
						YES	NO
PA	B1 01/66832 A2	09/13/2001	WO	C30B	16/44		X
PA	B2 01/40541 A1	06/07/2001	WO	C23C	16/40		X
PA	B3 01/36702 A1	05/25/2001	WO	C23C	16/00		X
PA	B4 01/29893 A1	04/26/2001	WO	H01L	21/768		X
PA	B5 01/29891 A1	04/26/2001	WO	H01L	21/768		X

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*Examiner Initial	Including Author, Title, Date, Pertinent Pages, Etc.	
PA	C1	Hultman, et al., "Review of the thermal and mechanical stability of TiN-based thin films", <i>Zeitschrift Fur Metallkunde</i> , 90(10) (Oct. 1999), pp. 803-813.
PA	C2	Klaus, et al., "Atomic Layer Deposition of SiO ₂ Using Catalyzed and Uncatalyzed Self-Limiting Surface Reactions", <i>Surface Review & Letters</i> , 5(3&4) (1998), pp. 435-448.
Examiner	<i>PA PA</i>	Date Considered 8/6/02
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LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant Xi, et al.				
(Use several sheets if necessary)				Filing Date October 03, 2000	Group 100 112,2828002 TC 1700			
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*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate	
<i>CH</i>	A14	5,246,536	09/21/93	Nishizawa et al.	156	610	03/10/1989	
<i>DL</i>	A15	5,254,207	10/19/93	Nishizawa et al.	156	601	11/30/1992	
<i>PS</i>	A16	5,296,403	03/22/94	Nishizawa et al.	437	133	10/23/1992	
<i>PS</i>	A17	5,311,055	05/10/94	Goodman et al.	257	593	11/22/1991	
<i>PS</i>	A18	5,316,615	05/31/94	Copel	117	95	03/09/1993	
<i>PS</i>	A19	5,348,911	09/20/94	Jurgensen et al.	117	91	04/26/1993	
<i>PS</i>	A20	5,374,570	12/20/94	Nasu et al.	437	40	08/19/1993	
<i>PS</i>	A21	5,438,952	08/08/1995	Otsuka	117	84	01/31/1994	
<i>PS</i>	A22	5,439,876	08/08/95	Graf et al.	505	447	08/16/1993	
<i>PS</i>	A23	5,441,703	08/15/95	Jurgensen	422	129	03/29/1994	
<i>PS</i>	A24	5,443,647	08/22/95	Aucoin et al.	118	723 ME	07/11/1994	
<i>PS</i>	A25	5,455,072	10/03/95	Bension et al.	427	255.7	11/18/1992	
<i>PS</i>	A26	5,469,806	11/28/95	Mochizuki et al.	117	97	08/20/1993	
<i>PS</i>	A27	5,503,875	04/02/96	Imai et al.	427	255.3	03/17/1994	
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*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translation	
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<i>CH</i>	B6	01/29280-A1	04/26/2001	WO	C23C	16/32		X
<i>CH</i>	B7	01/27347-A1	04/19/2001	WO	C23C	16/44		X
<i>CH</i>	B8	01/27346 A1	04/19/2001	WO	C23C	16/44		X
<i>CH</i>	B9	01/15220 A1	03/01/2001	WO	H01L	21/768		X
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*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.						
<i>CH</i>	C3	Yamaguchi, et al., "Atomic-layer chemical-vapor deposition of silicon dioxide films with extremely low hydrogen content", <i>Appl. Surf. Sci.</i> , Vol. 130-132 (1998), pp. 202-207.						
<i>CH</i>	C4	George, et al., "Surface Chemistry for Atomic Layer Growth", <i>J. Phys. Chem.</i> , Vol. 100 (1996), pp. 13121-131.						
Examiner		Date Considered <i>CH</i>						
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LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant Xi, et al.		RECEIVED APR 17 2002 100-28232 100	
(Use several sheets if necessary)				Filing Date October 03, 2000			
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*Examiner Initial	Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate	
<i>OK</i>	A28 5,521,126	05/28/96	Okamura et al.	437	235	06/22/1994	
<i>OK</i>	A29 5,527,733	06/18/96	Nishizawa et al.	437	160	02/18/1994	
<i>OK</i>	A30 5,540,783	07/30/96	Eres et al.	118	725	05/26/1994	
<i>OK</i>	A31 5,601,651	02/11/97	Watabe	118	715	12/14/1994	
<i>OK</i>	A32 5,616,181	04/01/97	Yamamoto et al.	118	723 ER	11/21/1995	
<i>OK</i>	A33 5,641,984	06/24/97	Aftergut et al.	257	433	08/19/1994	
<i>OK</i>	A34 5,644,128	07/01/97	Wollnik et al.	250	251	08/25/1994	
<i>OK</i>	A35 5,707,880	01/13/98	Aftergut et al.	437	3	01/17/1997	
<i>OK</i>	A36 5,747,113	05/05/98	Tsai	427	255.5	07/29/1996	
<i>OK</i>	A37 5,749,974	05/12/98	Habuka et al.	118	725	07/13/1995	
<i>OK</i>	A38 5,796,116	08/18/98	Nakata et al.	257	66	07/25/1995	
<i>OK</i>	A39 5,807,792	09/15/98	Ilg et al.	438	758	12/18/1996	
<i>OK</i>	A40 5,830,270	11/03/98	McKee et al.	117	106	08/05/1996	
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*Examiner Initial	Document Number	Date	Country	Class	Subclass	Translation	
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<i>OK</i>	B10 00/79576 A1	12/28/2000	WO	H01L	21/205		X
<i>OK</i>	B11 00/79019 A1	12/28/2000	WO	C23C	16/00		X
<i>OK</i>	B12 00/63957 A1	10/26/2000	WO	H01L	21/205		X
OTHER ART							
*Examiner Initial	Including Author, Title, Date, Pertinent Pages, Etc.						
<i>OK</i>	C5	George, et al., "Atomic layer controlled deposition of SiO ₂ and Al ₂ O ₃ using ABAB... binary reaction sequence chemistry", <i>Appl. Surf. Sci.</i> , Vol. 82/83 (1994), pp. 460-467.					
<i>OK</i>	C6	Wise, et al., "Diethyldiethoxysilane as a new Precursor for SiO ₂ growth on silicon", <i>Mat. Res. Soc. Symp. Proc.</i> , Vol. 334 (1994), pp. 37-43.					
Examiner <i>OK</i>				Date Considered <i>OK</i>			
*EXAMINER: Initial if reference considered whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.							

U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)				Docket No. AMAT/4714.P1		Serial No. 09/678,266	
LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant Xi, et al.		RECEIVED APR 12 2002 U.S. PATENT & TRADEMARK OFFICE	
(Use several sheets if necessary)				Filing Date October 03, 2000		Group 10783 2800000000	
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U.S. Patent Documents							
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date is Appropriate
	A41	5,835,677	11/10/98	Li et al.	392	401	10/03/1996
	A42	5,855,675	01/05/99	Doering et al.	118	719	03/03/1997
	A43	5,858,102	01/12/99	Tsai	118	719	02/14/1998
	A44	5,879,459	03/09/99	Gadgil et al.	118	715	08/29/1997
	A45	5,904,565	05/18/1999	Nguyen, et al.	438	687	07/17/1997
	A46	5,916,365	06/29/99	Sherman	117	92	08/16/1996
	A47	5,923,056	07/13/99	Lee et al.	257	192	03/12/1998
	A48	5,923,985	07/13/99	Aoki et al.	438	301	01/14/1997
	A49	5,925,574	07/20/99	Aoki et al.	437	31	04/10/1992
	A50	5,942,040	08/24/99	Kim et al.	118	726	08/27/1997
	A51	5,947,710	09/07/1999	Cooper, et al.	418	63	06/16/1997
	A52	5,972,430	10/26/99	DiMeo, Jr. et al.	427	255.32	11/26/1997
	A53	6,001,669	12/14/99	Gaines et al.	438	102	07/21/1992
	A54	6,174,377	01/16/2001	Doering, et al.	118	729	01/04/1999
Foreign Patent Documents							
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							YES NO
	B13	00/54320 A1	09/14/2000	WO	H01L	21/44	X
	B14	00/16377 A2	03/23/2000	WO	H01L	---	X
	B15	00/15881 A2	03/23/2000	WO	C30B	---	X
OTHER ART							
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.					
	C7	Niinisto, et al., "Synthesis of oxide thin films and overlayers by atomic layer epitaxy for advanced applications", <i>Mat. Sci. & Eng.</i> , Vol. B41 (1996), pp. 23-29.					
	C8	Ritala, et al., "Perfectly conformal TiN and Al _x O _y films deposited by atomic layer deposition", <i>Chemical Vapor Deposition</i> , Vol. 5(1) (January 1999), pp. 7-9.					
Examiner				Date Considered			
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(Use several sheets if necessary)					Filing Date October 03, 2000		Group 1700 1762712290
Examiner Unknown							
U.S. Patent Documents							
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
OT		A55 6,174,809	01/16/2001	Kang, et al.	438	682	12/15/1998
OT		A56 6,203,613	03/20/2001	Gates, et al.	117	104	10/19/1999
OT		A57 6,207,302	03/27/2001	Sugiura, et al.	428	690	03/02/1998
OT		A58 6,248,605	06/19/2001	Harkonen, et al.	438	29	06/02/1999
OT		A59 6,270,572	08/07/2001	Kim, et al.	117	93	08/09/1999
OT		A60 6,287,965	09/11/2001	Kang, et al.	438	648	02/23/2000
OT		A61 6,291,876	09/18/2001	Stumborg, et al.	257	632	08/20/1998
OT		A62 6,305,314	10/23/2001	Sneh, et al.	118	723 R	12/17/1999
OT		A63 6,306,216	10/23/2001	Kim, et al.	118	725	07/12/2000
OT		A64 6,316,098	11/13/2001	Yitzchaik, et al.	428	339	03/23/1999
OT		A65 2001/0000866	05/10/2001	Sneh, et al.	118	723 R	11/29/2000
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OT		A67 2001/0011526	08/09/2001	Doering, et al.	118	729	01/16/2001
Foreign Patent Documents							
*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translation
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OT		B16 99/41423 A2	08/19/1999	WO	C23C	---	X
OT		B17 96/18756 A1	06/20/1996	WO	C23C	16/08	X
OTHER ART							
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.					
OT	C9	Min, et al., "Atomic layer deposition of TiN thin films by sequential introduction of Ti precursor and NH _{sub} 3", Symp.: Advanced Interconnects and Contact Materials and Processes for Future Integrated Circuits (Apr. 13-16, 1998), pp. 337-342.					
OT	C10	Klaus, et al., "Atomic Layer Deposition of Tungsten using Sequential Surface Chemistry with a Sacrificial Stripping Reaction," Thin Solid Films 360 (2000), Pages 145 – 153, (Accepted Nov. 16, 1999).					
Examiner				Date Considered 16/08			
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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)				Docket No. AMAT/4714.P1	Serial No. 09/678,260			
LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant Xi, et al.				
(Use several sheets if necessary)				Filing Date October 03, 2000	Group 1762			
	Examiner Unknown							
U.S. Patent Documents								
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate	
<i>DS</i>	A68	2001/0031562	10/18/2001	Raaijmakers, et al.	438	770	02/22/2001	
<i>DS</i>	A69	2001/0034123	10/25/2001	Jeon, et al.	438	643	04/06/2001	
	A70							
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<i>DS</i>	B18	96/17107 A1	06/06/1996	WO	C28C	16/44		X
<i>DS</i>	B19	93/02111 A1	02/04/1993	WO	C08F	4/78		X
<i>DS</i>	B20	0 442 490 A1	08/21/1991	EP	C30B	25/02		X
<i>DS</i>	B21	0 344 352 A1	12/06/1989	EP	H01L	39/24		X
OTHER ART								
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<i>DS</i>	C11	Min, et al., "Metal-Organic Atomic-Layer Deposition of Titanium-Silicon-Nitride Films", <i>Applied Physics Letters</i> , American Inst. Of Physics, Vol 75(11) (Sept. 13, 1999).						
<i>DS</i>	C12	Martensson, et al., "Atomic Layer Epitaxy of Copper on Tantalum", <i>Chemical Vapor Deposition</i> , 3(1) (Feb. 1, 1997), pp. 45-50.						
Examiner <i>DS</i>				Date Considered <i>8/6/2</i>				
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Foreign Patent Documents								
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							YES	NO
	B22	62-091495 A	04/25/1987	JP	C30B	25/02		X
	B23	60-065712 A	04/15/1985	JP	C01B	33/113		X
	B24	03-048421	03/01/1991	JP	H01L	21/302		X
	B25	03-286531	12/17/1991	JP	H01L	21/316		X
	B26	04-031396 A	02/03/1992	JP	C30B	25/14		X
	B27	06-291048	10/18/1994	JP	H01L	21/205		X
	B28	08-264530	10/11/1996	JP	H01L	21/8205		X
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OTHER ART								
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.						
	C13	Ritala, et al. "Atomic Layer Epitaxy Growth of TiN Thin Films", <i>J. Electrochem. Soc.</i> , 142(8) (Aug. 1995), pp. 2731-737.						
	C14	Elers, et al., "NbC15 as a precursor in atomic layer epitaxy", <i>Appl. Surf. Sci.</i> , Vol. 82/83 (1994), pp. 468-474.						
	C15	Lee, "The Preparation of Titanium-Based Thin Film by CVD Using Titanium Chlorides as Precursors", <i>Chemical Vapor Deposition</i> , 5(2) (Mar. 1999), pp. 69-73.						
	C16	Martensson, et al., "Atomic Layer Epitaxy of Copper, Growth & Selectivity in the Cu (II)-2,2,6,6-Tetramethyl-3, 5-Heptanedion ATE/H ₂ Process", <i>J. Electrochem. Soc.</i> , 145(8) (Aug. 1998), pp. 2926-2931.						
Examiner	<i>Janet Jankle</i>				Date Considered	<i>10/17/00</i>		
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U.S. Patent Documents								
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	B35	2 355 727	05/02/2001	GB	C23C	16/44		X
OTHER ART								
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.						
	C17	Min, et al., "Chemical Vapor Deposition of Ti-Si-N Films with Alternating Source Supply", <i>Mat., Res. Soc. Symp. Proc.</i> , Vol. 564 (Apr. 5, 1999), pp. 207-210						
	C18	Bedair, "Atomic layer epitaxy deposition processes", <i>J. Vac. Sci. Technol.</i> 12(1) (Jan/Feb 1994)						
	C19	Yamaga, et al., "Atomic layer epitaxy of ZnS by a new gas supplying system in a low-pressure metalorganic vapor phase epitaxy", <i>J. of Crystal Growth</i> 117 (1992), pp. 152-155						
	C20	Elam, et al., "Nucleation and growth during tungsten atomic layer deposition on SiO ₂ surfaces," <i>Thin Solid Films</i> 386 (2001) Pages 41 - 52, (Accepted Dec. 14, 2000).						
Examiner	<i>Jeff H. Farck</i>					Date Considered	<i>10/6/2002</i>	
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(Use several sheets if necessary)		Filing Date October 30, 2000	Group 1762-2827
	Examiner Unknown		

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OZ	A24	6,051,286	04/18/00	Zhao et al.	427	576	08/22/97
OZ	A25	6,062,798	05/16/00	Muka	414	416	06/13/96
OZ	A26	6,071,808	06/06/00	Merchant et al.	438	633	06/23/99
OZ	A27	6,084,302	07/04/00	Sandhu	257	751	12/26/95
OZ	A28	6,086,677	07/11/00	Umiotoy et al.	118	715	06/16/98
OZ	A29	6,110,556	08/29/00	Bang, et al.	428	64.1	10/17/97
OZ	A30	6,117,244	09/12/00	Bang, et al.	118	715	03/24/98
OZ	A31	6,140,237	10/31/00	Chan et al.	438	687	04/19/99
OZ	A32	6,140,238	10/31/00	Kitch	438	687	04/21/99
OZ	A33	6,143,659	11/07/00	Leem	438	688	08/27/98
OZ	A34	6,144,060	11/07/00	Park et al.	257	310	07/31/98
OZ	A35	6,158,446	12/12/00	Mohindra et al.	134	25.4	09/04/98
OZ	A36	6,206,967	03/27/01	Mak, et al.	118	666	06/14/00
OZ	A37	6,271,148	08/07/01	Kao et al.	438	727	10/13/99
OZ	A38	2001/0041250	11/15/01	Werkhoven et al.	428	212	03/06/01

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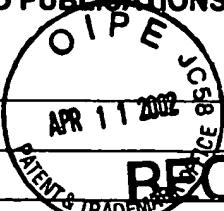
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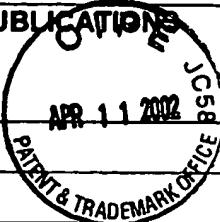
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(Use several sheets if necessary)				Filing Date October 30, 2000	Group 1762 2827			
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Examiner <i>Paul A. Jankle</i>				Date Considered <i>8/6/2</i>				
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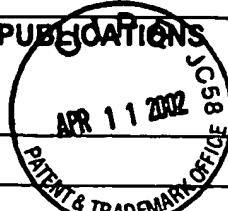
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Examiner <i>Janet. Janie</i>	Date Considered <i>8/16/2</i>
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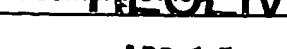
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Examiner <i>David J. Kori</i>				Date Considered <i>8/6/2</i>			

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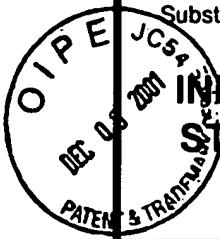
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<i>PH</i>	C1	Ohba, et al., "Thermal Decomposition of Methylhydrazine and Deposition Properties of CVD TiN Thin Films", Conference Proceedings, Advanced Metallization for ULSI Applications in 1993 (1994), pp. 143-149
<i>PH</i>	C2	Scheper, et al., "Low-temperature deposition of titanium nitride films from dialkylhydrazine-based precursors", Materials Science in Semiconductor Processing 2 (1999), pp. 149-157
<i>PH</i>	C3	Suzuki, et al., "A 0.2-μm contact filing by 450°C-hydrazine-reduced TiN film with low resistivity", IEDM 92-979, pp. 11.8.1 – 11.8.3
<i>PH</i>	C4	Suzuki, et al., "LPCVD-TiN Using Hydrazine and TiCl ₄ ", VMIC Conference (June 8-9, 1993), pp. 418-423
<i>PH</i>	C5	IBM Tech. Disc. Bull. "Knowledge-Based Dynamic Scheduler in Distributed Computer Control, (June 1990), pp. 80-84
<i>PH</i>	C6	IBM Tech. Disc. Bull. "Multiprocessor and Multitasking Architecture for Tool Control of the Advanced via Inspection Tools" (May 1992), pp. 190-191
<i>PH</i>	C7	McGeachin, S., "Synthesis and properties of some β-diketimines derived from acetylacetone, and their metal complexes", Canadian J. of Chemistry, Vol. 46 (1968), pp.1903-1912
<i>PH</i>	C8	Solanki, et al., "Atomic Layer deposition of Copper Seed Layers", Electrochemical and Solid State Letters, 3(10) (2000), pp. 479-480
<i>PH</i>	C9	NERAC.COM Retro Search: Atomic Layer Deposition of Copper, dated October 11, 2001
<i>PH</i>	C10	NERAC.COM Retro Search: Atomic Layer Deposition / Epitaxy Aluminum Oxide Plasma, dated October 2, 2001
<i>PH</i>	C11	NERAC Search abstract of "Atomic Layer deposition of Ta and Ti for Interconnect Diffusion Barriers", by Rossnagel, et al., J. Vac. Sci. & Tech., 18(4) (July 2000)
<i>PH</i>	C12	Abstracts of articles re atomic layer deposition
<i>PH</i>	C13	Abstracts of search results re atomic layer deposition, search dated January 24, 2002
<i>PH</i>	C14	Abstracts of articles re atomic layer deposition and atomic layer nucleation
<i>PH</i>	C15	Abstracts of articles re atomic layer deposition and semiconductors and copper
Examiner	<i>David J. Kori</i>	Date Considered <i>8/6/02</i>

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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)		APR 15 2002 TC 1700	Docket No. APPM/4714.P1	Serial No. 09/678,266
SUPPLEMENTAL LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT		<i>SEARCHED</i> APR 11 2002 PATENT & TRADEMARK OFFICE U.S. DEPT. OF COMMERCE		
(Use several sheets if necessary)		Applicant Kori, et al.	Confirmation No.: Unknown	
	Examiner Unknown	Filing Date October 30, 2000	Group 1702	2827
OTHER ART				
*Examiner Initial	Including Author, Title, Date, Pertinent Pages, Etc.			
<i>RAE</i>	C16	Abstracts of articles – atomic layer deposition		
<i>RAE</i>	C17	NERAC Search – Atomic Layer Deposition, search dated October 16, 2001		
<i>RAE</i>	C18	Bader, et al., "Integrated Processing Equipment", Solid State Technology, Cowan Pub., Vol. 33, No. 5 (May 1, 1990), pp. 149-154		
<i>RAE</i>	C19	Choi, et al., "The effect of annealing on resistivity of low pressure chemical vapor deposited titanium diboride", J. Appl. Phys. 69(11) (June 1, 1991), pp. 7853-7861		
<i>RAE</i>	C20	Choi, et al., "Stability of TiB ₂ as a Diffusion Barrier on Silicon", J. Electrochem. Soc. 138(10) (October 1991), pp. 3062-3067		
<i>RAE</i>	C21	"Cluster Tools for Fabrication of Advanced devices" Jap. J. of Applied Physics, Extended Abstracts, 22 nd Conference Solid State Devices and Materials (1990), pp. 849 – 852 XP000178141 (ARTICLE ON ORDER – TO BE PROVIDED)		
<i>RAE</i>	C22	"Applications of Integrated processing", Solid State Technology, US, Cowan Pub., Vol 37, No. 12 (December 1, 1994), pp. 45-47		
<i>RAE</i>	C23	Kitigawa, et al., "Hydrogen-mediated low temperature epitaxy of Si in plasma-enhanced chemical vapor deposition", Applied Surface Science (2000), pp. 30-34 (ARTICLE ON ORDER – TO BE PROVIDED)		
<i>RAE</i>	C24	Lee, et al., "Pulsed nucleation for ultra-high aspect ratio tungsten plugfill", Novellus Systems, Inc. (2001), pp. 1-2 (ARTICLE ON ORDER – TO BE PROVIDED)		
Examiner <i>David A. Zepke</i>	Date Considered <i>8/6/2</i>			
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Attorney Docket Number

4714P1/AMI-11

Application Number	09/678,866
Filing Date	10/03/2000
First Named Inventor	Ming Xi
Group Art Unit	1762 2827
Examiner Name	Unassigned ZARNAKE
Attorney Docket Number	4714P1/AMI-11

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
CH	AJ	4,058,430		Suntola et al.	11-15-1977	
CH	AK	4,389,973		Suntola et al.	06-28-1983	
CH	AL	4,413,022		Suntola et al.	11-01-1983	
CH	AM	4,767,494		Kobayashi et al.	08-30-1988	
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CH	BC	5,281,274		Yoder	01-25-1994	

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Application Number	09/678,266
Filing Date	10/03/2000
First Named Inventor	Ming Xi
Group Art Unit	1762-3827
Examiner Name	Unassigned <i>PRINCE</i>
Attorney Docket Number	4714P1/AMI-11

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
JK	BD	5,290,748		Knuutila et al.	03-01-1994	
JK	BE	5,294,286		Nishizawa et al.	03-15-1994	
JK	BF	5,300,186		Kitahara et al.	04-05-1994	
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Application Number	09/678,266
Filing Date	10/03/2000
First Named Inventor	Ming Xi
Group Art Unit	1762 2822
Examiner Name	Unassigned DARNEKE
Attorney Docket Number	4714P1/AMI-11

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
MM	BX	5,855,680		Soininen et al.	01-05-1999	
MM	BY	6,015,590		Suntola et al.	01-18-2000	
MM	BZ	6,025,627		Forbes et al.	02-15-2000	
MM	CA	6,036,773		Wang et al.	03-14-2000	
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MM	CC	6,043,177		Falconer et al.	03-28-2000	
MM	CD	6,113,977		Soininen et al.	09-05-2000	
MM	CE	6,124,158		Dautartas et al.	09-26-2000	
MM	CF	6,130,147		Major et al.	10-10-2000	
MM	CG	6,139,700		Kang et al.	10-31-2000	
MM	CH	6,200,893		Sneh	03-12-2001	

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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁴
		Office	Number ⁴	Kind Code ⁵ (if known)				
MM	CI	EP	0799641		Suntola et al.	10/08/1997		
MM	CJ	PC	WO/91/0510		Suntola et al.	07/25/1991		
MM	CK	PC	WO/99/01595		Suntola et al.	01/14/1999		
MM	CL	PC	WO/99/29924		Suntola et al.	06/17/1999		
MM	CM	PC	WO/00/15865		Leskela et al.	03/23/2000		

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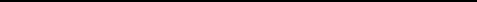
INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 4 of 4

<i>Complete if Known</i>	
Application Number	09/678,266
Filing Date	10/03/2000
First Named Inventor	Ming Xi
Group Art Unit	1762 <i>2825</i>
Examiner Name	Unknown <i>JENNE</i>
Attorney Docket Number	4714P1/AMI-11

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

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Application Number	unassigned 89/678246																
Filing Date	Unassigned																
First Named Inventor	Ming Xi																
Group Art Unit	Unassigned 2827																
Examiner Name	Unassigned 240NEKE																
Attorney Docket Number	4714 B1/AMI-00-11																
Sheet	1	of	2														

Examiner Signature		Date Considered	8/6/2
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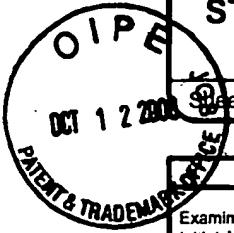
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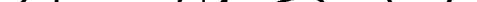
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<p>Sheet <u>1</u> of <u>1</u></p>		<p>Application Number</p>		<p>unassigned</p>	
<p>Filing Date</p>		<p>First Named Inventor</p>		<p>unassigned</p>	
<p>Group Art Unit</p>		<p>Examiner Name</p>		<p>Ming Xi</p>	
<p>Attorney Docket Number</p>		<p>unassigned</p>		<p>2823</p>	
<p>Attorney Docket Number</p>		<p>unassigned</p>		<p>2823</p>	



OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Signature  Date Considered 8/6/2024

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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)				Docket No.	Serial No.		
				APPM/4714.P1	09/678,266		
SUPPLEMENTAL LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant	Confirmation No.:		
				Kori, et al.	Unknown		
(Use several sheets if necessary)				Filing Date	Group		
				RECEIVED APR 15 2002 October 30, 2000	1762 2827		
U.S. Patent Documents							
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
	A1	4,813,846	03/21/89	Helms	414	744.1	04/29/87
	A2	4,917,556	04/17/90	Stark et al.	414	217	05/26/89
	A3	4,951,601	08/28/90	Maydan, et al.	118	719	06/23/89
	A4	5,000,113	03/19/91	Wang et al.	118	723	12/19/86
	A5	5,186,718	02/16/93	Tepman et al.	29	25.01	04/15/91
	A6	5,205,077	04/27/93	Wittstock	51	165 R	08/28/91
	A7	5,234,561	08/10/93	Randhawa et al.	204	192.38	08/25/88
	A8	5,259,881	11/09/93	Edwards, et al.	118	719	05/17/91
	A9	5,286,296	02/15/94	Sato et al.	118	719	01/09/92
	A10	5,609,689	03/11/97	Kato et al.	118	719	06/03/96
	A11	5,667,592	09/16/97	Boitnott et al.	118	719	04/16/96
	A12	5,674,786	10/07/97	Turner et al.	437	225	06/05/95
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	A15	5,788,447	08/04/98	Yonemitsu et al.	414	217	08/05/96
	A16	5,788,799	08/04/98	Steger, et al.	156	345	06/11/96
	A17	5,801,634	09/01/98	Young et al.	340	635	09/08/97
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	A19	5,866,213	02/02/99	Foster et al.	427	573	07/19/97
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Examiner <i>Kori, et al.</i>				Date Considered 8/6/2			
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(Use several sheets if necessary)		APR 11 2002 PATENT & TRADEMARK OFFICE	Filing Date October 30, 2000			
Examiner Unknown	Group 1762-2827					
U.S. Patent Documents						
*Examiner Initial	Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
OPZ	A24 6,051,286	04/18/00	Zhao et al.	427	576	08/22/97
OPZ	A25 6,062,798	05/16/00	Mohindra et al.	414	416	08/18/96
OPZ	A26 6,071,808	06/06/00	Merchant et al.	438	633	06/23/99
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OPZ	A28 6,086,677	07/11/00	Umotoy et al.	118	715	06/16/98
OPZ	A29 6,110,556	08/29/00	Bang, et al.	428	64.1	10/17/97
OPZ	A30 6,117,244	09/12/00	Bang, et al.	118	715	03/24/98
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OPZ	A32 6,140,238	10/31/00	Kitch	438	687	04/21/99
OPZ	A33 6,143,659	11/07/00	Leem	438	688	08/27/98
OPZ	A34 6,144,060	11/07/00	Park et al.	257	310	07/31/98
OPZ	A35 6,158,446	12/12/00	Mohindra et al.	134	25.4	09/04/98
OPZ	A36 6,206,967	03/27/01	Mak, et al.	118	666	06/14/00
OPZ	A37 6,271,148	08/07/01	Kao et al.	438	727	10/13/99
OPZ	A38 2001/0041250	11/15/01	Werkhoven et al.	428	212	03/06/01
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Examiner <i>Janet A. Farber</i>	Date Considered 8/6/02					
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.						

U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)				Docket No. APPM/4714.P1		Serial No. 09/678,266																											
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Examiner <i>David J. Zambra</i>				Date Considered 8/6/2																													

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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)					Docket No.	Serial No.		
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Examiner <i>Marc H. Janke</i>				Date Considered <i>8/6/2</i>		
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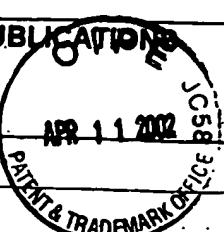
October 30, 2000

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Foreign Patent Documents

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Examiner <i>Paula A. Rusole</i>					Date Considered <i>8/6/01</i>				
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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)		RECEIVED APP 15 2002 OCT 17 2002 APR 11 2002 PATENT & TRADEMARK OFFICE		Docket No. APPM/4714.P1	Serial No. 09/678,266		
SUPPLEMENTAL LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant Kori, et al.	Confirmation No.: Unknown		
(Use several sheets if necessary)				Filing Date October 30, 2000	Group 162 2829		
Examiner Unknown							
Foreign Patent Documents							
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Examiner <i>David J. Jones</i>		Date Considered <i>8/6/2</i>					
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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)		APR 15 2002 TC 1700	Docket No. APPM/4714.P1	Serial No. 09/678,266
SUPPLEMENTAL LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT		O I P E APR 11 2002 PATENT & TRADEMARK OFFICE	Applicant Kori, et al.	Confirmation No.: Unknown
(Use several sheets if necessary)			Filing Date October 30, 2000	Group 170222827
Examiner Initial	Unknown			
OTHER ART				
*Examiner Initial				
Including Author, Title, Date, Pertinent Pages, Etc.				
	C1	Ohba, et al., "Thermal Decomposition of Methylhydrazine and Deposition Properties of CVD TiN Thin Films", Conference Proceedings, Advanced Metallization for ULSI Applications in 1993 (1994), pp. 143-149		
	C2	Schleper, et al., "Low-temperature deposition of titanium nitride films from dialkylhydrazine-based precursors", Materials Science in Semiconductor Processing 2 (1999), pp. 149-157		
	C3	Suzuki, et al., "A 0.2- μ m contact filing by 450°C-hydrazine-reduced TiN film with low resistivity", IEDM 92-979, pp. 11.8.1 – 11.8.3		
	C4	Suzuki, et al., "LPCVD-TiN Using Hydrazine and TiCl ₄ ", VMIC Conference (June 8-9, 1993), pp. 418-423		
	C5	IBM Tech. Disc. Bull. "Knowledge-Based Dynamic Scheduler in Distributed Computer Control, (June 1990), pp. 80-84		
	C6	IBM Tech. Disc. Bull. "Multiprocessor and Multitasking Architecture for Tool Control of the Advanced via Inspection Tools" (May 1992), pp. 190-191		
	C7	McGeachin, S., "Synthesis and properties of some β -diketimines derived from acetylacetone, and their metal complexes", Canadian J. of Chemistry, Vol. 46 (1968), pp.1903-1912		
	C8	Solanki, et al., "Atomic Layer deposition of Copper Seed Layers", Electrochemical and Solid State Letters, 3(10) (2000), pp. 479-480		
	C9	NERAC.COM Retro Search: Atomic Layer Deposition of Copper, dated October 11, 2001		
	C10	NERAC.COM Retro Search: Atomic Layer Deposition / Epitaxy Aluminum Oxide Plasma, dated October 2, 2001		
	C11	NERAC Search abstract of "Atomic Layer deposition of Ta and Ti for Interconnect Diffusion Barriers", by Rossnagel, et al., J. Vac. Sci. & Tech., 18(4) (July 2000)		
	C12	Abstracts of articles re atomic layer deposition		
	C13	Abstracts of search results re atomic layer deposition, search dated January 24, 2002		
	C14	Abstracts of articles re atomic layer deposition and atomic layer nucleation		
	C15	Abstracts of articles re atomic layer deposition and semiconductors and copper		
Examiner Initial	<i>Mark J. Stover</i>		Date Considered	<i>8/6/02</i>
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OTHER ART <table border="1"> <tr> <td>Examiner Initial</td> <td colspan="4">Including Author, Title, Date, Pertinent Pages, Etc.</td> </tr> <tr> <td>(AZ)</td> <td>C16</td> <td colspan="3">Abstracts of articles – atomic layer deposition</td> </tr> <tr> <td>(AZ)</td> <td>C17</td> <td colspan="3">NERAC Search – Atomic Layer Deposition, search dated October 16, 2001</td> </tr> <tr> <td>(AZ)</td> <td>C18</td> <td colspan="3">Bader, et al., "Integrated Processing Equipment", Solid State Technology, Cowan Pub., Vol. 33, No. 5 (May 1, 1990), pp. 149-154</td> </tr> <tr> <td>(AZ)</td> <td>C19</td> <td colspan="3">Choi, et al., "The effect of annealing on resistivity of low pressure chemical vapor deposited titanium diboride", J. Appl. Phys. 69(11) (June 1, 1991), pp. 7853-7861</td> </tr> <tr> <td>(AZ)</td> <td>C20</td> <td colspan="3">Choi, et al., "Stability of TiB₂ as a Diffusion Barrier on Silicon", J. Electrochem. Soc. 138(10) (October 1991), pp. 3062-3067</td> </tr> <tr> <td>(AZ)</td> <td>C21</td> <td colspan="3">"Cluster Tools for Fabrication of Advanced devices" Jap. J. of Applied Physics, Extended Abstracts, 22nd Conference Solid State Devices and Materials (1990), pp. 849 – 852 XP000178141 (ARTICLE ON ORDER – TO BE PROVIDED)</td> </tr> <tr> <td>(AZ)</td> <td>C22</td> <td colspan="3">"Applications of integrated processing", Solid State Technology, US, Cowan Pub., Vol 37, No. 12 (December 1, 1994), pp. 45-47</td> </tr> <tr> <td>(AZ)</td> <td>C23</td> <td colspan="3">Kitigawa, et al., "Hydrogen-mediated low temperature epitaxy of Si in plasma-enhanced chemical vapor deposition", Applied Surface Science (2000), pp. 30-34 (ARTICLE ON ORDER – TO BE PROVIDED)</td> </tr> <tr> <td>(AZ)</td> <td>C24</td> <td colspan="3">Lee, et al., "Pulsed nucleation for ultra-high aspect ratio tungsten plugfill", Novellus Systems, Inc. (2001), pp. 1-2 (ARTICLE ON ORDER – TO BE PROVIDED)</td> </tr> <tr> <td colspan="5"> </td> </tr> <tr> <td colspan="2">Examiner <i>David J. Smith</i></td> <td colspan="3">Date Considered 8/6/2</td> </tr> </table>					Examiner Initial	Including Author, Title, Date, Pertinent Pages, Etc.				(AZ)	C16	Abstracts of articles – atomic layer deposition			(AZ)	C17	NERAC Search – Atomic Layer Deposition, search dated October 16, 2001			(AZ)	C18	Bader, et al., "Integrated Processing Equipment", Solid State Technology, Cowan Pub., Vol. 33, No. 5 (May 1, 1990), pp. 149-154			(AZ)	C19	Choi, et al., "The effect of annealing on resistivity of low pressure chemical vapor deposited titanium diboride", J. Appl. Phys. 69(11) (June 1, 1991), pp. 7853-7861			(AZ)	C20	Choi, et al., "Stability of TiB ₂ as a Diffusion Barrier on Silicon", J. Electrochem. Soc. 138(10) (October 1991), pp. 3062-3067			(AZ)	C21	"Cluster Tools for Fabrication of Advanced devices" Jap. J. of Applied Physics, Extended Abstracts, 22 nd Conference Solid State Devices and Materials (1990), pp. 849 – 852 XP000178141 (ARTICLE ON ORDER – TO BE PROVIDED)			(AZ)	C22	"Applications of integrated processing", Solid State Technology, US, Cowan Pub., Vol 37, No. 12 (December 1, 1994), pp. 45-47			(AZ)	C23	Kitigawa, et al., "Hydrogen-mediated low temperature epitaxy of Si in plasma-enhanced chemical vapor deposition", Applied Surface Science (2000), pp. 30-34 (ARTICLE ON ORDER – TO BE PROVIDED)			(AZ)	C24	Lee, et al., "Pulsed nucleation for ultra-high aspect ratio tungsten plugfill", Novellus Systems, Inc. (2001), pp. 1-2 (ARTICLE ON ORDER – TO BE PROVIDED)								Examiner <i>David J. Smith</i>		Date Considered 8/6/2		
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LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT		Applicant Kori, et al.	Confirmation No. 4642
(Use several sheets if necessary)		JUN 05 2002	Filing Date 10/03/2000
	Examiner Zameke, D.		Group 2827

U.S. Patent Documents

*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
<i>QH</i>	A1	2001/0042799 A1	11/22/2001	Kim, et al.	239	553	02/02/2001
	A2						
	A3						
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Foreign Patent Documents

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OTHER ART

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<i>QH</i>	C1	"Cluster Tools for Fabrication of Advanced Devices" Jap. J of Applied Physics, Extended Abstracts 22 nd Conference Solid State Devices and Materials (1990), pp. 849- 852
<i>QH</i>	C2	Kitigawa, et al., "Hydrogen-mediated low temperature epitaxy of Si in plasma-enhanced chemical vapor deposition", Applied Surface Science (2000), pp. 30-34
<i>QH</i>	C3	Lee, et al., "Pulsed nucleation for ultra-high aspect ratio tungsten plugfill", Novellus Systems, Inc. (2001), pp. 1-2 (COPY NOT AVAILABLE TO APPLICANT AT THIS TIME)

Examiner *David D. Zameke* Date Considered *8/6/2*

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 1 of 2

Complete if Known	
Application Number	09/678,266
Filing Date	10/3/2000
First Named Inventor	Ming Xi
Group Art Unit	4762 2827
Examiner Name	unassigned JARNEKE
Attorney Docket Number	4714P1/AMI-11

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

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**Date
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¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

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Sheet 2 of 2

Complete if Known	
Serial Number	09/678,266
Filing Date	10/3/2000
First Named Inventor	Ming Xi
Group Art Unit	1702 1823
Examiner Name	URASSIGNED <i>JA FARNER</i>
Attorney Docket Number	4714P1/AMI-11

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)				Docket No.	Serial No.
				AMAT/4714.P1	09/678,266
LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant	
				Xi, et al.	
(Use several sheets if necessary)				Filing Date	Group
				October 03, 2000	1762 2827

U.S. Patent Documents

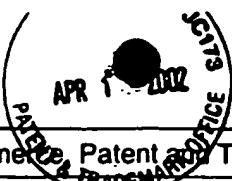
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<i>DT</i>	A1	4,486,487	12/04/84	Skarp	428	216	04/25/1983
<i>DT</i>	A2	4,829,022	05/09/89	Kobayashi et al.	437	107	12/09/1986
<i>DT</i>	A3	4,834,831	05/30/89	Nishizawa et al.	156	611	09/04/1987
<i>DT</i>	A4	4,838,983	06/13/89	Schumaker et al.	156	613	03/18/1988
<i>DT</i>	A5	4,838,993	06/18/89	Aoki et al.	156	643	12/03/1987
<i>DT</i>	A6	4,859,625	08/22/89	Nishizawa et al.	437	81	11/20/1987
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Foreign Patent Documents

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<i>DT</i>	B1	01/66832 A2	09/13/2001	WO	C30B	16/44		X
<i>DT</i>	B2	01/40541 A1	06/07/2001	WO	C23C	16/40		X
<i>DT</i>	B3	01/36702 A1	05/25/2001	WO	C23C	16/00		X
<i>DT</i>	B4	01/29893 A1	04/26/2001	WO	H01L	21/768		X
<i>DT</i>	B5	01/29891 A1	04/26/2001	WO	H01L	21/768		X

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*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
<i>DT</i>	C1	Hultman, et al., "Review of the thermal and mechanical stability of TiN-based thin films", <i>Zeitschrift Fur Metallkunde</i> , 90(10) (Oct. 1999), pp. 803-813.
<i>DT</i>	C2	Klaus, et al., "Atomic Layer Deposition of SiO ₂ Using Catalyzed and Uncatalyzed Self-Limiting Surface Reactions", <i>Surface Review & Letters</i> , 6(3&4) (1999) pp. 435-448.
Examiner	<i>John D. Jurko</i>	Date Considered <i>8/6/2</i>
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LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				RECEIVED APR 1 2002 1700 U.S. Patent Office 10/28/2002			
(Use several sheets if necessary)				Applicant Xi, et al.		Filing Date October 03, 2000	
Examiner Unknown		Group 1700 10/28/2002					
U.S. Patent Documents							
*Examiner Initial	Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate	
AT	A14 5,246,536	09/21/93	Nishizawa et al.	156	610	03/10/1989	
AT	A15 5,254,207	10/19/93	Nishizawa et al.	156	601	11/30/1992	
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AT	A17 5,311,055	05/10/94	Goodman et al.	257	593	11/22/1991	
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AT	A24 5,443,647	08/22/95	Aucoin et al.	118	723 ME	07/11/1994	
AT	A25 5,455,072	10/03/95	Bension et al.	427	255.7	11/18/1992	
AT	A26 5,469,806	11/28/95	Mochizuki et al.	117	97	08/20/1993	
AT	A27 5,503,875	04/02/96	Imai et al.	427	255.3	03/17/1994	
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AT	B6 01/29280 A1	04/26/2001	WO	C23C	16/32		X
AT	B7 01/27347-A1	04/19/2001	WO	C23C	16/44		X
AT	B8 01/27346 A1	04/19/2001	WO	C23C	16/44		X
AT	B9 01/15220 A1	03/01/2001	WO	H01L	21/768		X
OTHER ART							
*Examiner Initial	Including Author, Title, Date, Pertinent Pages, Etc.						
AT	C3	Yamaguchi, et al., "Atomic-layer chemical-vapor-deposition of silicon dioxide films with extremely low hydrogen content", <i>Appl. Surf. Sci.</i> , Vol. 130-132 (1998), pp. 202-207.					
AT	C4	George, et al., "Surface Chemistry for Atomic Layer Growth", <i>J. Phys. Chem.</i> , Vol. 100 (1996), pp. 13121-131.					
Examiner <i>David J. Sturz</i>				Date Considered <i>PTC/2</i>			
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LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant Xi, et al.			
(Use several sheets if necessary)				Filing Date October 03, 2000		Group 17 10/03/2000	
Examiner Unknown							
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	C14	Elers, et al., "NbC15 as a precursor in atomic layer epitaxy", <i>Appl. Surf. Sci.</i> , Vol. 82/83 (1994), pp. 468-474.					
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